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# Weekly Summary

## Special Report

*International Relationships in the Arctic Basin*

**Secret**

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# THE ARCTIC BASIN

The Arctic has taken on a new importance in recent years. The world's decreasing supply of easily available minerals—particularly fuels—has made the mineral wealth of this remote region increasingly attractive. Despite improved technology, however, exploitation will not be easy. Among the major problems are some unique jurisdictional questions and disagreement about the environmental fragility of the region. All this is further complicated by Soviet and Western military sensitivities and by competing scientific activities in the area.

During the past decade the US has made several attempts to reach multilateral agreements with other Arctic powers on economic development, scientific research, and protection of the environment. Progress has been delayed and sometimes blocked by the Soviet Union, whose military services view such agreements dimly. The Canadians have been wary because they fear US economic dominance in the region. Now, pressures from the UN Law of the Sea negotiations are stimulating new interest in international relationships in the Arctic basin.



US Icebreaker-tanker Manhattan in Canada's Northwest Passage

### Sovereignty Issues

Five countries border the Arctic Ocean: the US, Canada, Denmark, Norway, and the USSR. The entire Arctic shoreline is crossed by only two international land boundaries, US (Alaska)-Canada and USSR-Norway. The most recent land boundary change occurred in 1944, when Finland ceded the Pechenga area to the USSR, thereby giving the USSR and Norway a common boundary that, 13 years later, was delimited through the territorial sea in the Varangerfjord area. The only offshore boundaries in addition to the Varangerfjord line are:\*

- The US-Russia Convention Line of 1867 through the Bering Strait and extending northward to the "Frozen Ocean";
- The boundary delimiting the continental shelf between Greenland and Canada, agreed to in 1973;
- The Spitsbergen Treaty Line of 1920, which encloses the islands of the Svalbard

\* See fold-out map at end of text.

Archipelago. (The names Spitsbergen and Svalbard are sometimes used interchangeably. The name Spitsbergen applies only to the largest island in the archipelago, however, whereas Svalbard is the collective name for all islands within the treaty area.)

None of the above boundaries is in dispute. Disagreement does remain, however, as to jurisdiction over the seas and seabeds offshore.

The USSR has advanced a so-called sector claim to all lands between its coast and the North Pole, and both Canada and the USSR take the position that they have special rights in adjoining Arctic seas. The problem is compounded by the presence of landfast and drifting ice, making unclear the distinction between "Arctic territories" and "Arctic waters" or the applicability of the concept of "open sea" to the Arctic Ocean.

Soviet spokesmen have taken the position that Arctic problems should be resolved bilaterally and have shown great apprehension about any international cooperative arrangements or

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international regime for the entire Arctic. The terms "internal waters," "historic waters," and "closed seas" have been applied by many authoritative Soviet writers to numerous Arctic coastal water areas. Recent Soviet publications, however, have listed as "internal waters" only the White Sea and a few bays.

Nevertheless, Moscow claims as territorial waters a 12-nautical-mile zone bordering the entire Soviet coast. Apart from the lack of universal acceptance of this or any other width, definition of such waters in the Arctic poses the problem of fixing the shoreline in areas where permanent or temporary ice projects into the sea. So far, however, application of the 12-mile zone in the Soviet Arctic has caused an international dispute only in respect to the straits at the east and west ends of the Kara Sea, both less than 24 miles wide.

The USSR denies the US contention that its Arctic straits are international waterways with rights of innocent passage. On the other hand, in 1972 the USSR sent a research vessel as far east as Prudhoe Bay, on the north coast of Alaska, suggesting Soviet acceptance of the concept of free international passage through the open parts of the Arctic Ocean.

Canada's sovereignty problems and policies in the Arctic generally parallel those of the USSR, and each country has cited actions of the other to justify its policies. Although Canada has never formally made a sector claim, many government officials have publicly supported the concept since 1907 or earlier. In 1946 the Canadian ambassador to the US went so far as to state that Canada's sovereignty in its sector extended to the frozen sea as well as to all islands north to the Pole. At the present time, there seems to be general acceptance of Canadian sovereignty over any land area in the "sector," but reservations regarding the water and ice areas in the Arctic Ocean proper.

Recent statements by Ottawa and by leading Canadian polar authorities assert that the distinctive character of Arctic ice and waters implies special rights for the coastal states. This principle has been specifically applied to the waters of the Arctic Archipelago, which the government has repeatedly claimed to be "Canadian waters." In 1970, the year after the US icebreaker-tanker Manhattan sailed the Northwest Passage, the government reiterated its position that the Northwest Passage through the archipelago is neither an international strait nor a part of the high seas, but rather an internal water route. In Law of the Sea negotiations, Canada has supported broad jurisdiction by coastal states over fisheries, continental shelf resources, and pollution control. Canada already claims right to mineral resources on the continental shelf and beyond it to the continental slope and rise.

Norway has made no sector claim and has specifically rejected the official and quasi-official

During several summers in the 1960s, US Coast Guard icebreakers conducting oceanographic surveys in the Arctic attempted unsuccessfully to transit the USSR's Northern Sea Route. Soviet authorities maintained close surveillance of the ships and, although they did not physically block the vessels, they did strongly reaffirm Moscow's authority in these waters by diplomatic note. The US rejected the Soviet claims but turned back rather than attempt to pass through the 22-mile-wide Vilkitskiy Strait.

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sector claims of the USSR and Canada. At present, Oslo claims jurisdiction only over a four-mile territorial sea and a 12-mile exclusive fisheries zone, both measured from straight baselines connecting the outermost points of its mainland and island coasts. The International Court of Justice in 1951 established the validity of this baseline and ruled that the sea route through Norway's coastal islands is within Norwegian waters.

The treaty on the status of Spitsbergen recognized Norway's sovereignty over Svalbard, subject to rights specifically reserved to the other signatories. The US, Canada, and Denmark were among the original 15 nations signing the treaty; the USSR is one of 26 countries that subsequently acceded to it. Foremost among the rights granted the other signatories was a guarantee of access to the archipelago—on a basis of full equality with Norway—for maritime, industrial, mining, and commercial operations. The USSR has actively sought to expand its rights in Svalbard by challenging and demanding participation in certain Norwegian activities, such as construction of an airfield at Longyearbyen, and by maintaining a permanent coal mining population about twice the size of Norway's.

All parties to the treaty accept its application to land areas within the specified boundaries

and to the surrounding four-mile territorial sea established by Norway. The treaty makers did not, however, anticipate the oil and gas potential of the continental shelf. The Norwegians take the position that the treaty does not apply to activities there, since the shelf surrounding Svalbard is an extension of Norway's continental margin. Thus, Oslo interprets the treaty as limiting the mineral exploitation rights of the other contracting parties to the land area and four-mile territorial waters of the islands.

The USSR has directly questioned Norway's jurisdiction over the Svalbard shelf. Apart from its interest in the potential offshore resources, the USSR is believed to want some formal control, or veto power, over installations that may be built across the strategic entrance to the Barents Sea. The UK and the US have also recently notified Norway that they reserved their rights in this area, but did not take a final position on the issue.

Mainly because of this sovereignty question, in Law of the Sea negotiations Norway has favored coastal-state rights over exploitation of the continental shelf to 200 miles or 600 meters of water depth, whichever is farther seaward. The acceptance of this view would unite Norway's and Svalbard's shelves and would strengthen Norway's



The Soviet mining town of Barentsburg on Svalbard

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claim that the entire area is an extension of the mainland continental margin and outside the provisions of the Spitsbergen treaty. If it were eventually to be decided that the Spitsbergen treaty applies to the shelf around the archipelago, the boundary line between the Norwegian and Svalbard shelves drawn under any usual formula would place a large area of potential oil and gas resources under the treaty's provisions.

Denmark does not have, nor is it likely to have, any major sovereignty disputes with other Arctic countries. The continental shelf boundary with Canada was settled in 1973. A sector claim for Greenland has never stirred any apparent interest in Denmark, nor have factors related to Greenland or the Arctic had much effect on Denmark's Law of the Sea positions.

At present, Denmark has a three-mile territorial sea limit and, with some exceptions, an additional nine-mile fisheries zone. A demand by Greenlanders for a 50-mile fisheries zone is offset by broader Danish interests.

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#### Petroleum Resources

The Arctic Ocean basin, particularly the huge continental shelf of the USSR, is believed to contain some of the largest, but generally least exploitable, petroleum deposits in the world. Optimistic though highly speculative estimates of potential reserves are based largely on extrapolation from onshore geology combined with limited geophysical data derived from scientific surveys.

The economic importance of future discoveries of petroleum may depend as much on the environmental conditions at the site as on the size of the deposit. The severe climate alone causes petroleum extraction in the Arctic to be more difficult and costly than in temperate regions. Offshore, the problem is made much more difficult by landfast ice along the coasts and the drifting icepack in the central basin. The icepack averages six to ten feet in thickness, and drift rates are as much as several miles per day throughout the year.

Except in those parts of the Barents and Norwegian seas that are permanently free of ice,

offshore drilling from ships or floating platforms is feasible only during the short summer, and drilling from landfast ice is restricted to the winter season. Permanent drilling platforms would be subject to massive forces from moving ice. Although underwater drilling and completion techniques offer some promise, such effort would be endangered in much of the area by bottom scouring from ice ridges and icebergs, which have drafts of as much as 50 and more than 100 meters, respectively.

Several of the geological structures that may bear oil are in areas of the continental shelf where national boundaries have not yet been delimited. Jurisdiction over other potential deposits could be affected by a continental-shelf treaty establishing new distance and depth criteria.

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The USSR's continental shelf in the Arctic, which is more or less bounded by the 500-meter isobath, covers more than one million square miles. Soviet specialists have estimated that about 80 percent of the USSR's Arctic shelf has oil and gas potential, and that this area contains two thirds of all Soviet offshore petroleum reserves.

Soviet capabilities for offshore Arctic exploration vary widely. The importance of the Arctic land area to the USSR's economy has led to substantial transportation and scientific activity in the area and to the development of a large cadre of skilled personnel. The USSR lacks sophisticated marine exploration technology, however, and has a primitive offshore-drilling capability. At present, only about 2 percent of Soviet oil production is obtained from offshore deposits—all of it from areas where water depth is less than 60 meters.

Offshore mineral exploration was made a priority goal of the current Five-Year Plan (1971-75). This commitment was followed by the formation of new exploration organizations and acceleration of exploration activity. Within the Arctic, the Barents Sea was listed as a primary target. In 1972, a new organization—Sevmorgeo

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(Northern Marine Geological-Geophysical Association)—absorbed the national and several regional Arctic geological units. Sevmorgeo's assignment is to study the geological structure and mineral resources of the seabed along the entire Soviet Arctic coast.

Although accounts cite favorable structures in all of the USSR's Arctic seas, the Barents and Kara seas are generally believed to contain the best petroleum basins. The Barents Sea is the most accessible for study, being the most ice-free, and Sevmorgeo has focused its efforts here—particularly around Svalbard, where three exploration ships were reported working in 1973.

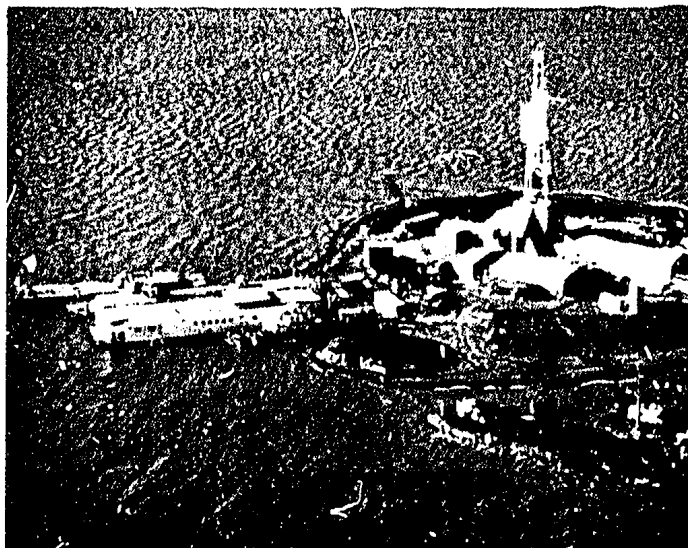
Any commercial development would probably require Western assistance. Some preliminary discussions have already been held with Western firms regarding exploration in the southeastern Barents Sea and the Kara Sea. Nevertheless, the USSR is not likely to move quickly toward exploitation—mainly because there are vast reserves in more accessible regions.

Canada's total recoverable petroleum reserves north of the 60th parallel have been estimated, based on the limited data available, at 70 to 120 billion barrels of oil and 330 to 530 trillion cubic feet of gas.

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Extensive exploration since 1968 in the Arctic Archipelago and the Mackenzie Delta area has been rewarding. In both areas, oil and gas discoveries seem large enough to justify construction of pipelines to markets in the south. To date, some 70 exploratory wells have been drilled in the archipelago and more than 50 in the delta area. Several offshore wells have confirmed the continuation of onshore deposits. Drilling in the Beaufort Sea has been from man-made islands in less than three meters of water and within eight miles of shore.

The Canadian shelf up to 200 meters deep has been fully leased for exploration, and some



Artificial island for petroleum drilling in Canada's Beaufort Sea

lease blocks extend offshore to depths of more than 1,000 meters. Extensive seismic and gravity surveys have been conducted over much of this area. Excluding the channels between Canada's Arctic islands, the most promising offshore area is north of the Mackenzie Delta, extending to about 100 miles from shore and into waters as deep as 200 meters. This prospective basin may continue offshore to the Prudhoe Bay deposits in Alaska. Canada and the US have not delimited their offshore boundary through this area.

Norway is concentrating its petroleum exploration and development efforts in the North Sea, where several large oil and gas fields have been discovered during the past few years. Production from these discoveries this year is expected to exceed Norwegian consumption. Oslo has granted offshore concessions only as far north as 62 degrees latitude, attempting there to postpone the disruptive effect petroleum development will bring to the economic and social order of more northerly areas.

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The complete results of extensive government-sponsored surveys north of 62 degrees have

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not been made public, but they reportedly reveal large and promising sedimentary structures. The area will probably be opened to limited concessions by 1975 or 1976.

Petroleum exploration concessions have been granted on Svalbard itself since 1960 and now cover much of its land area and portions of its territorial waters. Exploratory drilling has already been carried out on several of the islands by US and West European firms, with Norwegian participation. Some of the petroleum concession areas are held by Arktikugol, the Soviet coal-mining trust on Svalbard, which is drilling on the main island. Not all the drilling results have been released, but continued high interest and what is known of geological structures indicate a potential for important discoveries in the relatively ice-free and shallow seas southeast of the main islands.

interested in the possibility of similar finds in Greenland and the surrounding offshore areas. Areas of favorable geological structure have been identified along portions of both the western and eastern coasts, probably extending seaward to the 500-meter isobath, which marks the edge of the continental shelf.

From 1969 to 1972, when all permits expired, the Danish government granted petroleum exploration licenses covering all the favorable areas of the continental shelf to more than a dozen Danish and foreign firms. Continued interest on the part of the firms suggests that they were encouraged by the results of their explorations. Copenhagen is now preparing to lease areas off the west coast and has begun negotiations with the companies that have already done survey work. The first actual drilling on the leases will probably not begin before 1976. 25X1

Denmark, noting the oil discoveries in Arctic North America and northern Siberia, has become

Special Report

- 8 -

January 31, 1975

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### Transportation

The most important Arctic transportation service is the Northern Sea Route system of the USSR, an enterprise that has received large capital investments since the 1930s. The route stretches some 3,400 miles from Murmansk to the Bering Sea, linking about 20 ports with the outside world during the summer navigation season. Several hundred ships use the route annually, but relatively few make the complete transit. Nearly half of the total 3 million tons of cargo consists of exports of ores from Norilsk and timber from Igarka. (The much larger volumes handled by ports on the Barents and White Seas and the 350,000 tons of coal annually shipped by the USSR from Svalbard are not included in the Northern Sea Route's total.)

The USSR's fleet of some 15 icebreakers, which includes the 40,000-h.p., nuclear-powered Lenin, is supplemented by at least 12 ice-strengthened transports that have a limited capability to clear channels for other ships. The Yermak, the first of three new 36,000-h.p., diesel-powered icebreakers, entered service in 1974. This year the

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Arktika, the first of two 60,000-h.p. nuclear-powered icebreakers, will become operational. These ships, the largest icebreakers in the world, are apparently designed to extend the shipping season in the western Soviet Arctic to six-nine months.

In Canada, marine transportation to Arctic ports is provided by the Canadian coast guard and several private shipping companies. The operations consist entirely of resupply of northern settlements in the Arctic islands and the Mackenzie Delta. Total shipments into ports in the Arctic islands amount to a few tens of thousands of tons annually. A somewhat larger amount of traffic is carried into Mackenzie Bay by barges coming down-river and by ocean freighters around Alaska. To service these routes and to conduct Arctic research, Canada has six icebreakers—ranging from 6,500 to 24,000 h.p.—as well as several specialized supply vessels.

The development of oil and gas fields in the northern Canadian Arctic is causing an increase in cargo shipments, but plans call for the petroleum output to be moved south by pipeline. In 1969 the US icebreaker-tanker Manhattan traveled through the Northwest Passage to the Beaufort Sea, demonstrating the feasibility, if not the economic practicability, of using tankers to ship oil from the high Arctic. Interest in transporting oil through the Arctic Ocean by tankers has since waned because the Manhattan test revealed that the route could be used only during summer and because subsequent stringent Canadian antipollution legislation would raise the costs of tanker construction and operation.

Norway operates a regular shuttle service to Svalbard without icebreaker support during the summer season. Denmark's Ministry of Trade and Shipping controls one medium and one small icebreaker, which are used to assist shipping, primarily around southern Greenland. A commercial Danish firm owns a small fleet of ice-strengthened merchant ships that are used in Greenland waters and are chartered by other nations for use in Arctic and Antarctic waters.

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### Fisheries

Fisheries north of the Arctic Circle are most highly developed in the relatively ice-free waters of the Barents and Norwegian seas. Extensive ice cover elsewhere not only impedes development of fish stocks by reducing phytoplankton production but also hampers the operation of trawler fleets. The total annual catch in the Barents and Norwegian seas averages 3 million tons, nearly 5 percent of the total world catch. By far the greater part of this is taken in waters north of the Arctic Circle. The most productive grounds are over the shallow parts of the continental shelf off Norway, Svalbard, and the Kola Peninsula of the USSR.

The Soviet Northern Fisheries Fleet, based in Murmansk, has been taking an increasing share of the catch in the Barents Sea, and now has a near monopoly in the eastern part adjoining the Soviet coast. Agreements allowing the UK and Norway to fish within specified portions of Soviet territorial waters in the Arctic were terminated in 1962 and 1970, respectively.

Norway is Western Europe's most important fishing nation, with an annual catch of nearly 3 million tons. In contrast to the large distant-water trawler fleets operated by the USSR, the Norwegian fleet has consisted mainly of small- and medium-sized vessels operating out of settlements along the central and northern coasts. In recent years, however, overfishing and strong foreign competition in traditional fishing areas have forced Norway to turn increasingly to distant-water fishing, which now nearly equals coastal fishing in total catch. The competition from Soviet, British, and West German fishermen has also resulted in vigorous political agitation for government protection of domestic fishing interests. Consequently, in Law of the Sea negotiations Norway supports an exclusive fishing zone for coastal states of at least 50, and preferably 200, miles.

### Scientific Programs

A significant portion of the total scientific effort in and over the Arctic Ocean is related to



Soviet "Moskva" class icebreaker  
Leading merchant ship through pack ice

the ocean's ice cover and to geophysical phenomena associated with its polar location. This includes research on the effect of the earth's magnetic field on atmospheric events, and measurements of aurora, radio propagation, and energy particles.

The USSR's scientific effort in the Arctic greatly exceeds the combined activities of all other nations. More than 100 scientific stations on land, many research and merchant ships, and specially equipped aircraft collect data that are used chiefly to support shipping along the Northern Sea Route. Research centers north of the Arctic Circle are off limits to foreigners, with the exception of Murmansk, visited occasionally by US scientists, and the Krenkel Observatory on Franz Josef Land, used periodically as a site for a cooperative space program with France.

Since 1937, the USSR has established 22 manned scientific research stations on the drifting

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Arctic icepack. In recent years, two or three of these drift stations have been operated year-round as research bases; they also function in the spring as aircraft support bases for a wide-ranging oceanographic research program over the entire Arctic basin. Aircraft and ships are used each year to establish about 20 automatic stations, which report environmental conditions during their drift across the Arctic. In addition to this largely civilian effort, one or more large temporary camps are established each spring by the Soviet navy to conduct hydrographic, acoustical, magnetic, and possibly other types of research.

The primary responsibility for Soviet Arctic research is held by the Arctic and Antarctic Scientific Research Institute, which has a staff of 1,500 with headquarters in Leningrad. In 1967 the institute conceived an ambitious program called POLEX (Polar Experiment), which has integrated and expanded previously existing research into a decade-long study of air-sea-ice interaction over

the entire Arctic basin. POLEX has been recognized as part of a worldwide effort of the international scientific community and has been loosely coordinated with scientists from the US and other Arctic nations.

Canada's Arctic research is conducted by several ministries and a number of universities from a sparse network of permanent research stations and a larger number of field research camps. Additionally, extensive survey work has been conducted on and around the northern islands by mineral and petroleum firms. From March to October, systematic aerial surveys of sea ice are carried out over the main waterways between the Arctic islands and over the Beaufort Sea and the Arctic Ocean. The Department of Energy, Mines, and Resources coordinates Arctic research through its Polar Continental Shelf Project, begun in 1959 to study the continental shelf, the waters, and the Arctic islands.



US ice island station Arlis II, a typical drifting scientific base

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Since 1969, Canada and the US have been engaged in planning and preliminary work on the Arctic Ice Dynamics Joint Experiment (AIDJEX). This complex Arctic Ocean research program is designed to conduct measurements from manned and unmanned drift stations as well as submarines and aircraft to determine the large-scale response of sea ice to its environment. Efforts to integrate the AIDJEX and POLEX programs have made some progress but have been hampered by the extreme sensitivity of the Soviets to any foreign activities in "their" Arctic area.

Norway's Polar Institute, located in Oslo, has long been a leader in polar exploration and in geological and terrestrial geophysical studies. Much of Norway's work is carried out in conjunction with the USSR: coordinated fisheries expeditions are conducted annually in the Barents Sea, and the USSR has proposed a comprehensive agreement to provide for joint research and exploration on and around Svalbard.

Research on Greenland also has a strong international flavor. Besides the large US participation in geophysical and weather studies at Thule and glaciological studies on the ice cap, Soviet, French, and British parties have conducted geological and biological research on the island.

#### Outlook

Economic development in Arctic Ocean coastal and offshore areas is certain to accelerate. Petroleum prospecting will gradually be extended farther to the north in several areas where government policies have postponed development, and production from offshore deposits in the Arctic Ocean will begin by the 1980s. Improvements in transportation capabilities will keep pace with economic growth. New icebreakers being acquired by the USSR and the US promise to extend the length of the operating season and to expand the areas open to shipping.

Some cooperative scientific research and exchange of data will continue to take place because many problems can be solved only by data collection over the entire region. The USSR is less in need of cooperation than are the other nations, however, because of its superior data-collection capability and the liberal data-release policies of the other countries.

Arctic sovereignty issues are not likely to be settled soon. Ambiguities in Soviet and Canadian intentions regarding their sector claims, for example, appear unlikely to be quickly clarified. The USSR seems determined not to allow future conferences on the Law of the Sea to become a forum for such discussions, claiming that Arctic problems can and should be solved bilaterally. Both the USSR and Canada are determined to maintain control over their Arctic water routes, contending that Arctic straits are not international waterways.

Probably the most important and potentially contentious sovereignty issue in the Arctic concerns jurisdiction over the continental shelf around Svalbard. Norway has no pressing economic need to exploit the mineral resources of the Svalbard shelf, and Western firms will probably be reluctant to invest heavily in exploration beyond Svalbard's territorial sea without Norwegian approval.

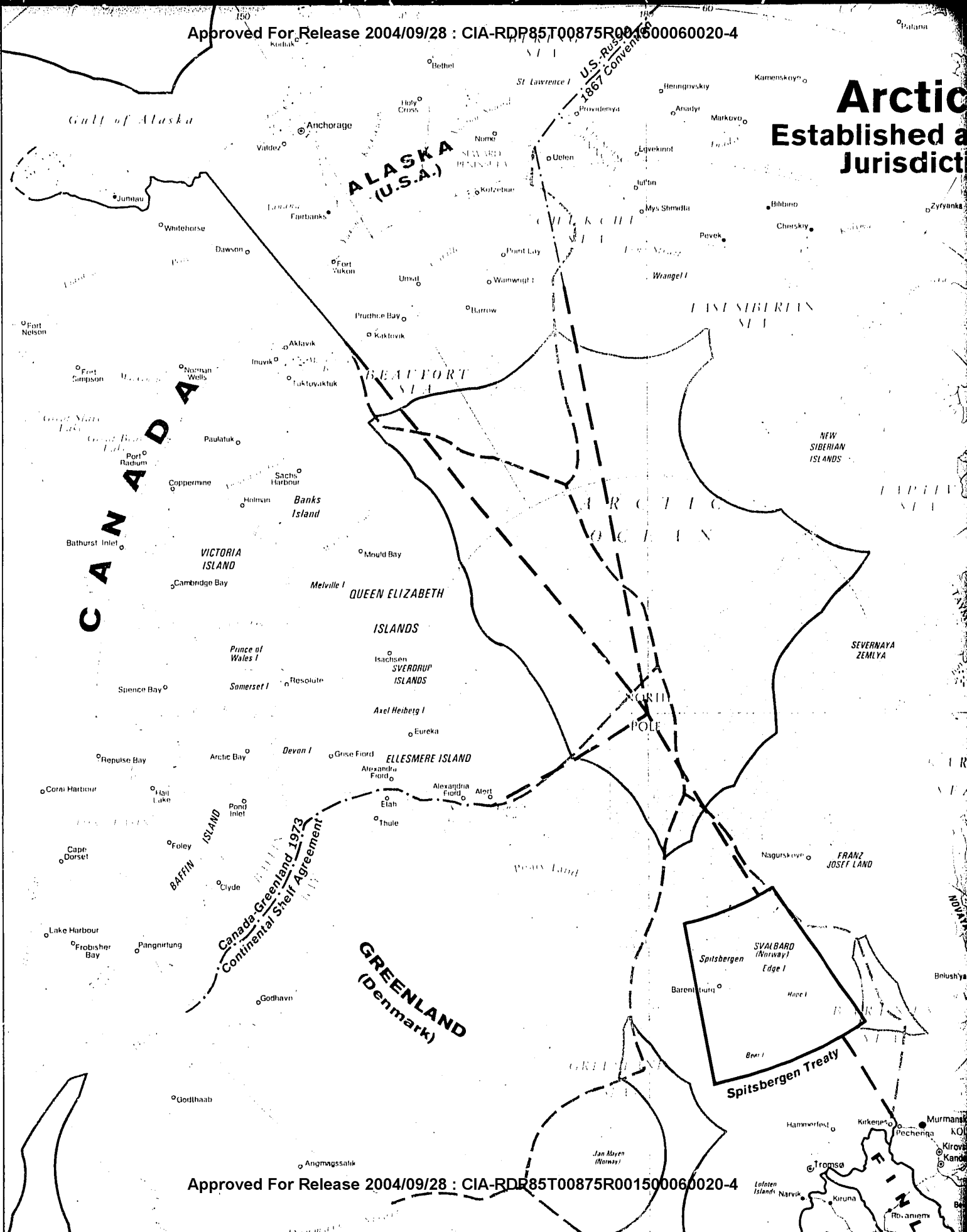
Thus, on the whole there is little prospect that growing awareness of their common concerns will persuade the five countries bordering the Arctic Ocean to agree on a special international legal regime for the area. Mutual interests—such as science, pollution control, and economic development—could lead to some form of Arctic agreement or compact, but such mutual interests are outweighed by the USSR's desire to maintain absolute sovereignty and freedom of action in its own sector of the basin.

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# Arctic Established a Jurisdiction



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